

# MECHANICS OF SLENDER STRUCTURES IN PHYSICS, BIOLOGY AND ENGINEERING: FROM FAILURE TO FUNCTIONALITY

SOLVAY WORKSHOP 27-29 AUGUST 2018 (ULB, BRUSSELS, BELGIUM)

## SCOPE

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During the past decade, mechanical instabilities were exploited to design new classes of functional mechanisms making use of the geometrically nonlinear behavior of their post-buckling regimes. Using flexible structures is nowadays considered as a promising route to create devices with novel modes of functionality or metamaterials with tailored properties such as foldable 3D objects obtained from 2D sheets by combined origami and Kirigami, flexible/stretchable electronics, bioelectronics or soft actuators for robotic applications, etc. This shift in thinking leads also to new developments in biology, where slender and flexible structures are ubiquitous, such as a better understanding of the morphogenesis of organs, the motion and the shape of plants or the locomotion of aquatic animals.

The ambition of this meeting is to bring together internationally acclaimed experts as well as young researchers in mechanics, biomechanics, biolocomotion, material science and architecture to address the current scientific challenges in these various fields. The workshop will serve as a platform to stimulate discussions, to start long-term scientific collaborations and to promote progress at the porous boundaries between these research domains.

## TOPICS

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- Elastic Instabilities of Slender Objects
- Foldable Structures/Origamis/Kirigamis
- Elasto-capillarity/Fluid-Structure Interaction
- Biomechanics
- Bio-Inspired Robotics/Stretchable Electronics

## CONFIRMED SPEAKERS

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JOSÉ BICO (ESPCI, France)

PIERRE-THOMAS BRUN (Princeton, USA)

ITAI COHEN (Cornell, USA)

BENNY DAVIDOVITCH (UMass, USA)

VINCENT DÉMERY (ESPCI, France)

ALAIN GORIELY (Oxford, UK)

JOHN HUTCHINSON (Harvard, USA)

FUMIYA IIDA (Cambridge, UK)

ELLEN KUHL (Stanford, USA)

STÉPHANIE LACOUR (EPFL, Switzerland)

LAKSHMINARAYANAN MAHADEVAN (Harvard, USA)

SÉBASTIEN NEUKIRCH (Institut d'Alembert, France)

DRAGA PIHLER-PUZOVIC (Manchester, UK)

THOMAS SALEZ (Bordeaux, France)

THOMAS SPECK (Freiburg, Germany)

BRAM VANDERBORGHT (VUB, Belgium)

DOMINIC VELLA (Oxford, UK)

## APPLICATIONS AND PRACTICAL INFORMATION

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Applications for contributed talks and posters are welcome. A one-page abstract of the proposed contribution should be sent to Fabian Brau (email: [fabian.brau@ulb.ac.be](mailto:fabian.brau@ulb.ac.be)). Abstract submission deadline: **March 15, 2018**.

Attendance is free of charge but registration via the website is required. Registration deadline: **August 1, 2018**.

For more information about the workshop (venue, hotels, etc.), please visit the website:

[http://www.solvayinstitutes.be/event/workshop/mechanics\\_2018/mechanics\\_2018.html](http://www.solvayinstitutes.be/event/workshop/mechanics_2018/mechanics_2018.html)

We look forward welcoming you in Brussels in August 2018.

The scientific and organizing committee:

F. Brau, P. Damman, N. De Temmerman, Y. Forterre, P. Reis, D. Reynaerts, D. Terwagne